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Indian Standard
SPECIFICATION FOR
PATTERN PLATES FOR MACHINE
MOULDING BOXES
(*First Revision*)

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INDIAN STANDARDS INSTITUTION
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Indian Standard

SPECIFICATION FOR PATTERN PLATES FOR MACHINE MOULDING BOXES (First Revision)

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Indian Standard

SPECIFICATION FOR
PATTERN PLATES FOR MACHINE
MOULDING BOXES

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 December 1975, after the draft finalized by the Foundry Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard was first published in 1968 keeping in view IS : 1280-1967 'Specification for foundry moulding boxes of steel construction'. Since IS : 1280 has been revised, it has been decided to align this standard also with the revised version of IS : 1280.

0.3 For large production of castings in a foundry, moulding machines are employed and the patterns are mounted on plates with runners and risers attached. These plates are known as pattern plates. For snap flask work on squeeze machines the pattern plate may be double-sided, that is, carry the drag portion of the pattern on one side and the cope portion on the other side. Larger patterns are mounted on one side only of the pattern plate, one machine may be making drags and another copes.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for pattern plates for machine moulding boxes.

*Rules for rounding off numerical values (*revised*).

2. SUPPLY OF MATERIAL

2.1 General requirements relating to the supply of pattern plates shall conform to IS : 1387-1967*.

3. MANUFACTURE

3.1 The pattern plates shall be manufactured according to foundry's requirements from grey cast iron, cast aluminium alloy and lined with soft, light or heavy metal.

3.2 When cast in grey iron, the material shall conform to the requirements of Grade 20 of IS : 210-1970†, and when cast in aluminium alloy it shall conform to Grade A-24 of IS : 617-1975‡. In case wood is used for making pattern plates, the quality of wood used, and design of plate shall be as agreed to between the purchaser and the manufacturer. Further lining material shall be used according to purchaser's requirements.

4. SHAPE AND SIZE

4.1 The shape and size of pattern plates shall be in accordance with Table 1. The size of the pattern plate to be specified in the order shall include length, breadth, thickness and height of the pattern plate (l_1 , b_1 , t and h , see Table 1).

4.1.1 The thickness t and height h of the pattern plate shall depend on the type and height of the mould and shall be mentioned in the order.

4.1.2 Top and bottom surfaces of pattern plates shall be machined true and parallel.

4.2 If required by the purchaser, round and polygonal pattern plates may also be supplied. The dimension (l_1) shall then correspond to the diameter of the round plate and the diameter of the inscribed circle in the case of polygonal pattern plates.

5. PIN CENTRES

5.1 The distance between pin centres (l_2) shall be as shown in Table 1.

5.2 The holes for the pins in the lugs shall be jig drilled to diameter d as given in Table 1. The tolerance on pin centre distance shall be not more than ± 0.5 mm.

6. LUGS

6.1 The minimum dimensions of lugs shall be as shown in Table 1.

*General requirements for the supply of metallurgical materials (*first revision*).

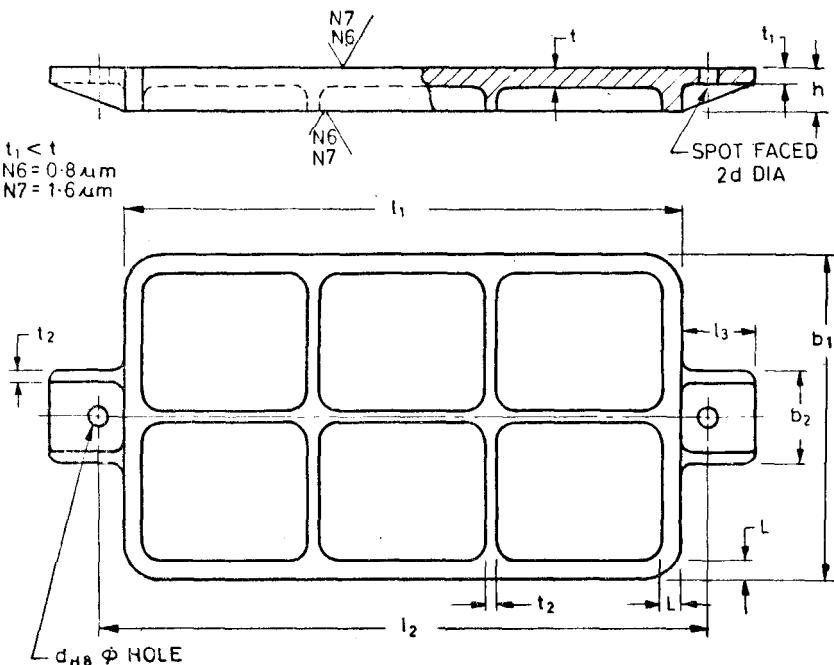
†Specification for grey iron castings (*second revision*).

‡Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*second revision*).

TABLE 1 DIMENSIONS OF PATTERN PLATES

(Clauses 4.1, 5.1, 5.2, 6.1 and 7.1)

All dimensions in millimetres.



LENGTH l_1	BREADTH b_1	DISTANCE BETWEEN PIN CENTRES l_2	THICK- NESS t_1	LUG LENGTH l_3	LUG WIDTH b_2	PIN HOLE DIA d	THICK- NESS OF RIBS t_2	L
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
345	345	395						
385	345 385	435						
430	345 385 430	480	25	75	100	19	10	20

(Continued)

TABLE 1 DIMENSIONS OF PATTERN PLATES — *Contd*

LENGTH l_1	BREADTH b_1	DISTANCE BETWEEN PIN CENTRES l_2	THICK- NESS t_1	LUG LENGTH l_3	LUG WIDTH b_2	PIN HOLE DIA d	THICK- NESS OF RIBS t_2	E
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
480	345	530						
	385							
	430							
	480							
530	345	580						
	385							
	430							
	480							
	530							
590	385	640	25	75	100	19	10	20
	430							
	480							
	530							
	590							
660	385	710						
	430							
	480							
	530							
	660							
750	440	820						
	490							
	540							
	670							
	750							
840	440	910	25	100	125	22	15	25
	490							
	540							
	670							
	750							
	840							
940	490	1010						
	540							
	670							
	750							
	840							
	940							

(Continued)

TABLE 1 DIMENSIONS OF PATTERN PLATES — *Contd*

LENGTH l_1	BREADTH b_1	DISTANCE BETWEEN PIN CENTRES l_2	THICK- NESS t_1	LUG LENGTH l_3	LUG WIDTH b_2	PIN HOLE DIA d	THICK- NESS OF RIBS t_2	L
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 040	540	1 110						
	670							
	750							
	840							
	940							
	1 040							
1 170	680	1 230		30	100	150	25	20
	760							
	850							
	950							
	1 050							
	1 170							
1 300	850	1 360						25
	950							
	1 050							
	1 170							
	1 300							
	950							
1 450	1 050	1 510						
	1 170							
	1 300							
	1 450							
	1 650							
	950							
1 650	1 050	1 760						
	1 170							
	1 300							
	1 450							
	1 650							
	950							
1 850	1 050	1 960		36	100	150	30	20
	1 170							
	1 300							
	1 450							
	1 650							
	1 850							
2 050	1 050	2 160						30
	1 170							
	1 300							
	1 450							
	1 650							
	1 850							
	2 050							

7. RIBS

7.1 Ribs of suitable size shall be provided in the plates taking into consideration the size of the plate and the material of construction. When the pattern plates are made of grey iron, the ribs shall be of thickness (t_2) as given in Table 1. The ribs shall be slightly tapered on both sides and corners rounded. The distance between the two ribs shall be between 175 and 225 mm.

8. CLAMPING ARRANGEMENT

8.1 Clamping or fixing arrangement of the pattern plates and the position and size of flanges for introducing vibrators shall be as agreed to between the purchaser and the manufacturer.

9. MARKING

9.1 Each pattern plate shall be marked with the manufacturer's name or trade-mark and the size of the pattern plate.

9.1.1 The pattern plates may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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1280-1975	Foundry moulding boxes of steel construction (<i>second revision</i>)
1305-1967	Graphite for use as foundry facing material (<i>second revision</i>)
1513-1971	Pattern equipment for foundries (<i>first revision</i>)
1752-1973	Coal dust for use in cast iron foundry (<i>second revision</i>)
1811-1961	Methods of sampling foundry sands
1918-1966	Methods of physical tests for foundry sands
1987-1974	High silica sand for use in foundries (<i>first revision</i>)
3339-1975	Silica flour for use in foundries (<i>first revision</i>)
3843-1975	Natural moulding sand for use in foundries (<i>first revision</i>)
3666-1966	Tests for foundry core oils requiring baking
4140-1967	Limestone for use in foundries
4269-1967	Dextrin for use in foundries
4475-1975	Crane-suspended hand-operated geared ladles for iron foundries (<i>first revision</i>)
4476-1975	Crane-suspended hand-operated geared ladles for steel foundries (<i>first revision</i>)
4604-1975	Pattern plates for machine moulding boxes (<i>first revision</i>)
4606-1968	Steel shot for use in foundries
4683-1968	Chilled iron shot and grit for use in foundries
4981-1975	Guide pins for foundry pattern plates (<i>first revision</i>)
4982-1975	Closing pins for foundry moulding boxes (<i>first revision</i>)
5032-1975	Recommended sizes of cupola furnace for foundry (<i>first revision</i>)
5303-1974	Zircon flour for use in foundries (<i>first revision</i>)
5824-1970	Lancets for use in foundries
5841-1970	Fluted core cleaners for use in foundries
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6378-1971	Pattern lifting and rapping plates
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7295-1974	Chamotte
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